Association for Information Systems

AIS Electronic Library (AISeL)

ICEB 2005 Proceedings

International Conference on Electronic Business (ICEB)

Winter 12-5-2005

E-Grocery Shopping Trends in the U.S.

Jay Singh

S. Paul Singh

Uruchaya Sonchaeng

E-Grocery Shopping Trends in the U.S.

Jay Singh*, S. Paul Singh**, Uruchaya Sonchaeng***
* Corresponding author , Assistant Professor, Orfalea College of Business
California Polytechnic State University, San Luis Obispo, CA 93407, USA
Phone: (805) 756 2129, Fax: (805) 756 6111, email: jasingh@calpoly.edu
**Professor, School of Packaging,
Michigan State University, East Lansing, MI 48824, USA
Phone: (517) 355 9580, Fax: (517) 353 8999, email: singh@msu.edu
***Research Assistant, School of Packaging,
Michigan State University, East Lansing, MI 48824, USA
Phone: (517) 333 3961, Fax: (517) 353 8999, email: sonchaen@msu.edu

Abstract: By June 2002, there were 17 grocers in the U.S. and Canada offering delivery services that allowed customers to order via the Internet or telephone. Within these grocers, some such as Peapod and FreshDirect offer services through the Internet without owning any retail store front while some supermarkets like Albertson's, Safeway, Publix and Tesco have developed their online grocery services as another shopping option for their customers. Studying the profile of online grocery shoppers and their behaviors can help businesses to develop and improve their strategies. This paper will discuss the findings from a survey (1516 respondents) on e-grocery in the United States. Responses to such topics as demographics & psychographics, shopping patterns, online shopping experiences, mental, physical and time related considerations, opinions about shopping and buying on the internet and order sizes are discussed.

Keywords: Operations strategy for e-commerce, e-grocery, consumer survey

I. Introduction

The Internet has become a viable way for conducting business. Its capability for communication between individuals without regard of geographic locations allows businesses to develop their markets worldwide. With the increasing number of Internet users and greater endorsement of customers for online shopping (Geissler 2002), the Internet can help businesses reach their customers in a shorter time and at a lower transaction cost (Kirkpatrick, 2002).

Among the growing number of online businesses, the online grocery market is a category that has been discussed widely for its suitability for e-commerce (Anckar et. al. 2002). Despite the collapse of some high profile operators like Webvan, Streamline and HomeGrocer (Berning et al, 2004), recent research indicates continued growth in this e-grocery segment is slated to reach as much as $11.3 sector (Kornum and Bjerre, 2005). By some predictions the Billion by 2006 (Berning et al, 2004). In the United States the bigger trend is high value grocery items such as premium meats and seafood, and assorted fresh fruits (Singh, 2005)

Proceedings of the Fifth International Conference on Electronic Business, Hong Kong, December 5-9, 2005, pp. 650 - 657.

II. E-Grocery

According to Berning et al, 2004, e-grocery may be defined as "*a firm that uses the Internet to sell a full range of perishable items such as meat, fresh produce and frozen products and non-perishable food and drink items, such as breakfast cereals or canned goods. These products are ordered online for pick-up at a physical store or delivery to the customer's home, office or school*".

Groceries differ from many other non perishable products, such as music and books, which are commonly purchased online. Many grocery products are perishable and therefore time-sensitive in terms of their delivery needs. The term "perishable" is used for those goods that are not pantry items and need to be stored in a refrigerator or a freezer. In addition, groceries are a replacement product, i.e., the same basket of products is more-or-less purchased on a regular basis (Kempiak and Fox 2002). Finally, some groceries are dependent on organoleptic (touch, smell, and sight) experiences, meaning that consumers like to inspect the quality of items they are purchasing. Even though the freshness and quality of the products can be guaranteed by the business, consumers still have difference preferences and acceptance standards for certain kinds of grocery products (Anckar et al, 2002). With these reasons, groceries could be considered as product category that is not suitable for online business. However, researches show that there are many factors for online groceries to thrive in the world of e-commerce. Many consumers dislike the chore of grocery shopping (Corral 1999) and many of them even have shopping stress (Aylott and Mitchell 1998). Thus, convenience and time saving can be dominant reasons for consumers to shop for groceries online. According to one survey report (Chiger 2001) 67% of the online shoppers agreed that convenience was the main reason they had bought via the Internet with 41% mentioning price as another factor.

E-grocery business models

Socioeconomic characteristics such as the ever growing demand on consumers' time, increased wealth, and heightened levels of stress in consumers' everyday lives have influenced the growth of E-Commerce in general. The high total cost of E-grocers' picking and distributing items from a wide range of possible products and consumers learning to shop online may be delaying the wider adoption of such E-Commerce by grocers and consumers alike (Lim et al, 2004). As reported in June 2002, there were 17 grocers in the U.S. and Canada offering delivery services that allowed customers to order via the Internet or telephone (Geissler 2002). Slowly but surely, retailers are coming back with two basic business models — online ordering piggy-backed onto existing supermarkets, and the so-called pure-play approach, which seemed in danger of dying off after the Webvan conflagration, but now has resurfaced with a much more specialized way of doing business (Lempert 2005). Some large supermarket chains such as Albertson's, Safeway, Publix, Tesco, etc., opt for the first choice (i.e. store-based e-grocers). Examples of the pure-plays (i.e. grocers without physical store) are Peapod and FreshDirect.

Brick-and-mortar add-ons

Brick-and-mortar companies had been reluctant to fray into the e-grocery market for a long period of time. It is the entrance and the perceived success of the pure-plays that has caused them to reevaluate their strategy. The brick-and-mortar add-ons can be categorized as those that sell online themselves and those that establish partnerships with pure-plays (Lempert 2005). Despite its potential advantages, the pure-play model has its drawbacks.

1. Brick-and-mortar stores have established locations, brand names, and a large customer base.
2. A majority of consumers still prefer to buy groceries from a retail store. They may like to smell the vegetables and squeeze the fruit, or they may like to unwind from a long day by walking among the fresh breads of the bakery.
3. Consumers also trust the grocery stores they have known for many years, and like to shop where they feel assured the quality is consistent and the price is right.
4. Probably the biggest challenges for pure-plays are in order fulfillment and home delivery. Supermarkets aggregate demand by allowing customers to come to the stores, and therefore customers do the order picking and delivery. According to Procter & Gamble, traditional in-store shoppers who pick, pack, and deliver their own products now save the industry approximately 13 percent of the total cost of sales (Tapscott and Ticoll, 2000).
5. For e-grocers, the more deliveries in a given area, the lower the costs per delivery. Except for a few cities, Americans who can afford computers and Internet access are more likely to live in suburbs, which means more driving and fewer deliveries per hour for any company that offers home delivery.

Pure-play online e-grocers

Over the past decade the number of defunct e-grocers, including Webvan, HomeGrocer, Shoplink, and Kozmo, have far outnumbered the survivors. From a business perspective, the pure-play (no retail storefronts, only web ordering and delivery, and possibly one or more warehouses) e-grocer model has several advantages over the traditional retail grocery model (Hays et al, 2004).

1. E-grocers do not have the high costs associated with multiple retail locations, including rent, parking, and high property taxes.
2. By "pooling" their inventory in fewer locations, e-grocers can better manage their inventory, reducing inventory holding costs and increasing inventory turnover rates. This leads to less spoilage of products and shorter lead times from the producer to the consumer, key advantages in selling perishable products.
3. E-grocers can collect detailed information about their customers' buying habits and preferences, which can then be used for targeted marketing and personalized promotions. Such one-to-one marketing is what the traditional grocers are trying to do by using loyalty cards to track purchases.
4. E-grocers may generate incremental sales growth for the industry. Although many retailers and consumers believe that impulse purchases diminish online, some companies such as Amazon.com have been able to foster impulse selling quite well with innovative marketing.

III. Summary of the Survey Results

It is still not certain whether e-grocers would lead to successful businesses or not. Some online grocers such as Webvan, Streamline, and Homegrocer have failed to continue their businesses. However, some still survive and many supermarket chains are starting to offer online services as an option for their customers. Socioeconomic characteristics such as growing demands on consumers' time, increased wealth, and heightened levels of stress in many regular situations are among those factors that dramatically change many consumer markets. Ideal customer characteristics for the e-grocery segment of the Internet business have been studied by various surveys (Berning et al, 2004). Defining the ideal customer is intended to explain the low adoption rate within the e-grocery sector and if e-grocers are entering the correct geographic segments. Studying the profile of online grocery shoppers and their behaviors can help the businesses to develop and improve their strategies. According to one study (Berning et al, 2004), an ideal customer is a female aged between 25 and 44 years, likely belongs to a dual income household with income greater than $50,000, has children and is likely to have a college education. The study also concluded that convenience was the largest factor for e-grocery customers.

This paper discusses the findings of a survey on e-grocery in the United States. This survey was conducted by

Survey International Inc. on the internet with customers in Chicago, IL, Boston, MA, New York, NY, Seattle, WA, and San Francisco, CA. Responses to issues such as demographics & psychographics, shopping patterns, online shopping experiences, mental, physical and time related considerations, opinions about shopping and buying on the internet and order sizes from 1516 respondents are discussed in the following section.

Respondent demographics and psychographics

- A majority of the respondents were females (77% of 1516 respondents).
- 32% of the respondents lived with 2 persons in the household and 62% had no children under the age of 16.
- Respondents were educated as 26% of them reported to finish short-advanced study (up to 2 years duration) and 25% finished medium-advanced study (up to 4 years duration).
- Major range of ages for the respondents was 30-55 years.
- The gross income of the household ranged between \$37,000 and \$49,000.
- 40% of them spent \$150-\$299 each month on groceries while 26% spent \$300-\$449.
- Most respondents lived in New York (36%) and Illinois (26%).
- Almost all of them (96%) had cars and of these, 42% had 2 cars in a household. 25% of them had bicycles and 4% had motorcycles.
- 65% of the respondents owned their houses.

Considering the internet experiences of the respondents, the results can be summarized as follows. Most respondents (95%) had access to the Internet at home, 53% had access to the Internet at work or educational establishment, 52% had access to the Internet at family, friends or acquaintances and only 19% had access to the Internet at other places than those mentioned before.

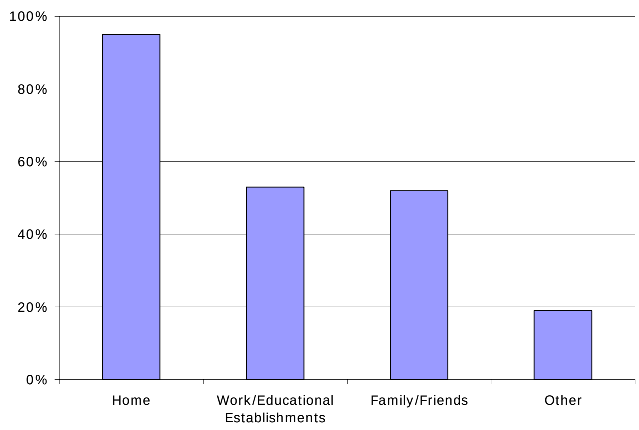

FIGURE 1: INTERNET ACCESS LOCATION FOR RESPONDENTS

Most of them never (73%) or rarely (18%) used the Internet at a library or at an Internet café. Most of them (72%) used the Internet daily at home and 33% used the Internet daily at work or educational establishment. They rarely used the Internet at family, friends or acquaintances (46% answered “never” and 33% answered “less than 1 time per month”). Most of them (87%) never used the Internet at other places than those mentioned above.

Most of the respondents had used the Internet for more that 3 years. When asked about the first time the respondents had experienced the Internet, it had been more than 6 years for 40% of them, 5-6 years for 23% of them, and 3-4 years for 26% of them. More than half (54%) of the respondents spent more than 10 hours on the Internet during a normal week, irrespective of whether it is related to work, education or leisure. 54% of them considered themselves to have a moderate expertise in the Internet use, while 28% considered themselves to have a basic expertise.

Considering what the respondents found important to their lives, the following results are found from the survey. Values that were ranked most as “*extremely important*” to the respondents’ lives were - to obtain safety for their loved ones (70%), to have freedom of action and thought (65%), to enjoy life (61%), to have close friends (42%), to be competent, effective and efficient (41%), and to have a varied life (36%).

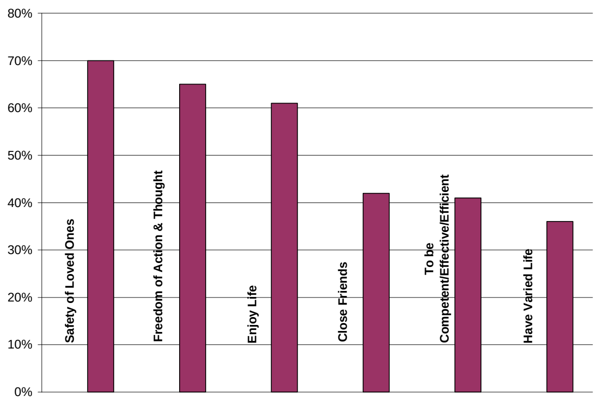

FIGURE 2: VALUES “EXTREMELY” IMPORTANT TO RESPONDENTS

Values that were ranked most as “*very to extremely important*” to their lives were; to have self-respect (60% extremely and 25% very important), to live a healthy life (53% extremely and 25% very important), to be polite (46% extremely and 26% very important), to be tolerant to different ideas and beliefs (43% extremely and 27% very important), to be helpful (39% extremely and 33% very important), to obtain pleasure in life (38% extremely and 29% very important), to have respect for traditions (33% extremely and 25% very important), and to have self-discipline and to resist temptations (30% extremely and 28% very important). More over, 26% of them ranked the value to protect the environment as “*very important*”.

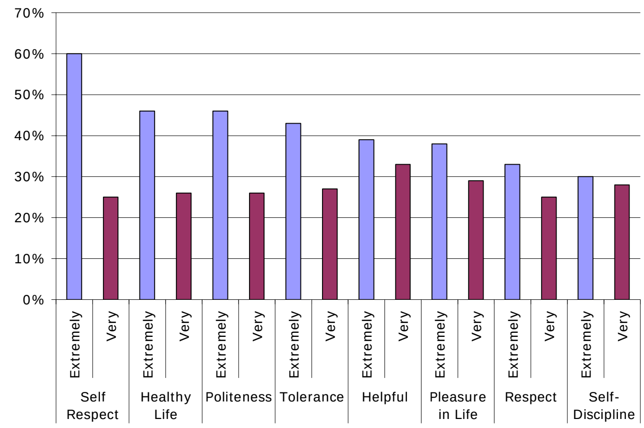

FIGURE 3: VALUES "VERY-TO-EXTREMELY" IMPORTANT TO RESPONDENTS

25% of the respondents ranked the value to have exciting lives as "*quite important*". For the value to have an impact on people and events, 26% of them ranked it as "*quite important*" and another 26% ranked it as "*neither important nor not important*". Values that were ranked most as "*neither important nor not important*" to their lives were - to obtain social recognition and respect (27%), to achieve material wealth (27%) and to avoid extremes of feeling and action (28%).

Shopping patterns

Concerning the responsibility for grocery shopping, more than half (52%) of the respondents did all of the grocery shopping, while 33% did most of the grocery shopping in the household. 55% of the respondents did main grocery shopping at the stores located within 0-3 miles from their houses. 68% of them reported to shop most often at other stores that are not listed in the survey. (Stores listed in the survey include Kroger, Safeway, Wal-Mart, Albertsons, Meijer, Shaw Supermarkets, Osco\Jewels, Aldi, Publix, and Ahold).

41% of the respondents normally bought grocery once a week and 34% bought it 2-3 times a week. Most of them wrote shopping lists before going grocery shopping as shown by the majority responses to this question as "always" (31%), "often" (28%) and "sometimes" (26%). Before going for grocery shopping, more than half of the respondents (61%) "never" looked for special offers on the internet while some of them "always" (36%) or "often" (30%) read special bargain or advertising folders. Half of the respondents (50%) "always" chose the store to shop in advance while 29% "often" did that. 39% "often" chose the product they wanted to buy in advance while 31% "always" did the same thing. About one-third (34%) "often" chose the brand they preferred to buy while 28% "sometimes" and 25% "always" did that.

Questions about how they combined their daily shopping with other activities revealed the following results. Activities that they rarely combined with grocery shopping were - going from workplace, doing grocery shopping and collecting children (74% answered "never") and going from workplace, collecting children and doing grocery shopping (73% answered "never"). Combination of a trip from workplace, grocery shopping, and leisure activities as well as a trip from workplace, leisure activities and grocery shopping showed high responses for "never" (48%) however there were also significant responses as "sometimes" (27%). This is similar to the responses to a question about combining a trip from workplace to grocery as 33% answered "never" and 30% answered "sometimes".

The respondents "sometimes" combined grocery shopping with the following activities; leisure activities (43%), going to the post office, doctor, etc. (52%), shopping commodities e.g. clothes, CDs, books, PC equipment, etc. (49%). The respondents' answers ranged from "sometimes", "rarely" and "never" when asked about combining these activities with grocery shopping - visiting family (36% never, 25% rarely, 32% sometimes), visiting friends (34% never, 27% rarely, 34% sometimes), shopping permanent goods e.g. white goods, PC, radio/TV, etc. (25% never, 35% rarely, 33% sometimes), shopping in special shops e.g. cheese monger, fruits and vegetables, etc. (28% never, 27% rarely, 34% sometimes).

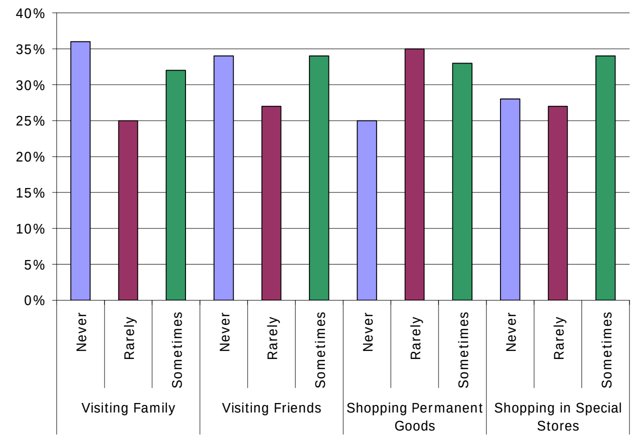

FIGURE 4: RESPONSES TO "SOMETIMES" COMBINING GROCERY SHOPPING WITH OTHER ACTIVITIES

Online shopping experiences

When asked which of the products/services the respondents had looked for information or bought via the Internet, the percentage of positive responses could be summarized in the Table 1 below.

TABLE 1: PERCENT OF THE POSITIVE RESPONSES FOR VARIOUS CATEGORIES OF PRODUCT/SERVICE

Products/Services	Never sought information or purchased online	Sought information on the Internet	Purchased Online
Groceries	54 %	40 %	11 %
Household goods	23 %	57 %	38 %

Products/Services	Never sought information or purchased online	Sought information on the Internet	Purchased Online
PCs	33 %	57 %	20 %
PC Supply (programs, etc.)	30 %	51 %	38 %
Furniture and housing equipment	39 %	54 %	14 %
Medicine	39 %	52 %	16 %
Travels and vacation	20 %	58 %	42 %
Pizza, Fast food (delivery)	76 %	20 %	6 %
Music/videos/books	10 %	53 %	68 %
Toys	30 %	44 %	44 %
Tickets (e.g. theater tickets)	36 %	43 %	36 %
Flowers, gifts for delivery	39 %	39 %	38 %
Personal care items	38 %	43 %	33 %
Accommodation	29 %	51 %	39 %
Insurance	54 %	43 %	6 %
Clothes	23 %	49 %	53 %

It can be seen that more than half (54 %) of the respondents had never sought information or purchased groceries online. However 40 % of them at least had sought information on the Internet and 11% had purchased groceries online. The products/services that were most purchased online based on this survey were music/ videos/books (68 %), clothes (53 %), toys (44 %), and travels and vacation (42 %). The respondents sought information on the Internet mostly on these products - travels and vacation (58 %), household goods (57 %), PCs (57 %), and furniture and housing equipment (54 %). The products/services that the respondents less likely sought information for or purchased online were fast foods (76 % “never”), groceries (54 % “never”) and insurance (54% “never”).When asked about how long it had been since the first grocery purchase over the Internet, 80 % of the respondents answered that they had never shopped groceries on the Internet.

Mental, physical and time-related considerations in relation to buying groceries

The respondents ranked the importance of these considerations regarding grocery shopping as follows. They mostly agreed that when they bought groceries, it was important what they chose (51 % strongly agreed and 39 % agreed). It was also important to them that they made the right decision when buying groceries (28 % strongly agreed and 57 % agreed). Many of them (40 %) agreed that usually there is so much to do that they wished they had more time. When asked if they were often in a hurry when they bought groceries, 32% agreed and 28 % disagreed. 29% of the respondents agreed that grocery shopping was something to be dealt with and to finish the sooner the better, while 31 % of them neither agreed nor disagreed. Many of them (42 %) neither agreed nor disagreed to the statement that there was a big difference between the groceries; however 27 % agreed to that statement.

Almost half of the respondents (49 %) disagreed that they often worried whether they made the right choices when buying groceries. Many (31 %) disagreed that the transportation of their bought grocery products was hard and 27 % neither agreed nor disagreed. 36% of the respondents disagreed that the transportation of their bought groceries was exhausting and 27 % neither agreed nor disagreed. About one-third (35 %) of the respondents disagreed that they liked to shop in stores they were unfamiliar with and another one-third of them (34 %) neither agreed nor disagreed. 37% of the respondents neither agreed nor disagreed that they liked to meet other people in the supermarket while 29 % disagreed. About the same number of the respondents disagreed (29 %) and neither agreed nor disagreed (29 %) that they really liked to visit different supermarkets, however, 25% of them agreed to that statement.

Opinions about shopping and buying on the internet

A majority of the respondents answered that it was *not important* that they could buy the following type of goods at an Internet grocery store; vegetables (73 %), fruit (72 %), meat (70 %), fish (76 %), fillings (73 %), dairy products (72 %), frozen goods (67 %), organic products (77 %). Even though a very small portion of the respondents answered “*very important*” to the above question, the results are shown here for comparison. The importance of the fact that they could find these products can be ranked as the following; fruits (11%), vegetables (11%), meat (10%), frozen goods (10%), dairy products (10%), fish (7%), organic products (5%) and fillings (5%). Figure 5 below shows these findings.

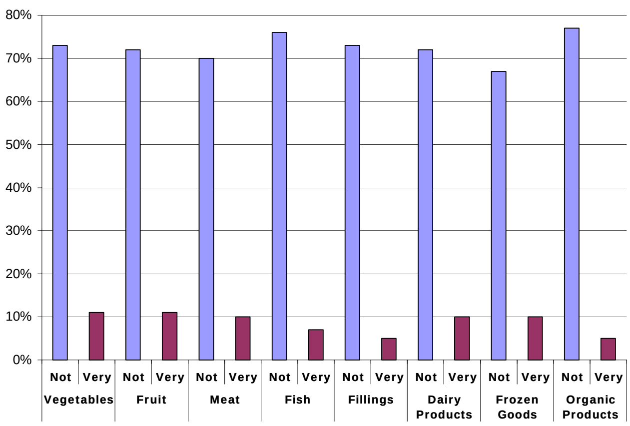

FIGURE 5: RESPONSES TO THE IMPORTANCE OF AVAILABILITY OF VARIOUS TYPES OF GROCERIES ON THE INTERNET

When asked about a reasonable minimum order value that included free packing and delivery when they bought groceries on the Internet, about one-third (31 %) of the respondents answered *$25-$59*. When asked what a reasonable charge would be if they bought below the minimum order value that they selected, twenty-three percent of the respondents answered *$5-6*, while 19% answered $0-2 and another 19% answered $3-4.

Most respondents *agreed* that the electronic shopping of groceries was complex because they could not feel and see the products (37% strongly agreed, 39% agreed). Almost half (46%) of the respondents agreed that a risk when buying groceries via the Internet was receiving low quality products or incorrect items. Most of them *disagreed* that buying groceries via the Internet was well suited to the way in which their households normally shopped for groceries (25% strongly disagreed, 34% disagreed).

The majority of the respondents *neither agreed nor disagreed* with the following statements:

- Shopping groceries via the Internet was favorable as it makes them less dependent of opening hours (28% neither agreed nor disagreed)
- Electronic shopping of groceries was easy to fit into their daily lives (31% neither agreed nor disagreed)
- It was hard to find the needed products when shopping groceries via the Internet (43% neither agreed nor disagreed, 26% no opinion)
- With electronic shopping of groceries it was difficult to order products (46% neither agree nor disagreed, 26% no opinion)
- It was easy to compare the prizes of grocery products on the Internet (36 % neither agreed nor disagreed)
- There was a lot of money to be saved when buying groceries on the Internet (45% neither agreed nor disagreed)
- There were too many untrustworthy shops on the Internet (42% neither agreed nor disagreed)
- Security around payment on the Internet was not good enough (33% neither agreed nor disagreed)
- It was difficult to receive groceries purchased via the Internet and to have them home delivered (37% neither agreed nor disagreed)
- There is too many of their preferred grocery products that they could not buy on the Internet (43% neither agreed nor disagreed, 27% no opinion)
- The groceries were often damaged when they received them at home (37% neither agreed nor disagreed, 47% no opinion)
- The cold and frozen goods were often inadequately cold/frozen when they received them at home (35% neither agreed nor disagreed, 48% no opinion)
- They often lacked room at home for returnable boxes (32% neither agreed nor disagreed, 38% no opinion)

The majority of the respondents answered *agree* and *neither agree or disagree* to the following statements:

- Electronic shopping of groceries was less exciting than buying in the non-internet shop (25% agreed, 36% neither agreed nor disagreed)
- Using electronic shopping of groceries saved much time (29% agreed, 34% neither agreed nor disagreed)
- Return and exchange opportunities were not as good on the Internet as in the supermarket/ non-internet shop (34% agreed, 25% neither agreed nor disagreed)
- Possibilities for advice were much too poor on the Internet (27% agreed, 36% neither agreed nor disagreed)
- Arrangement for payment on the Internet was just as safe as every other payment method (28% agreed, 29% neither agreed nor disagreed)
- To have groceries purchased on the Internet delivered at home was too expensive (26% agree, 36% neither agreed nor disagreed)

The majority of the respondents answered *disagree* and *neither agree or disagree* to the following statements:

- Electronic shopping was in general, very complex (30% disagreed, 36%neither agreed nor disagreed)
- Most of their friends and acquaintances thought shopping groceries via the Internet was a good idea (27% disagreed, 34% neither agreed nor disagreed)
- It was easy to compare the quality of groceries via the Internet (30% disagreed, 29% neither agreed nor disagreed)
- In general electronic shopping of groceries was problem-free (26% disagreed, 37% neither agreed nor disagreed)
- Members of their families thought that it was a good idea to buy groceries via the Internet (25% disagreed, 31% neither agreed nor disagreed)
- They often had difficulties at home in disposing of non-recyclable packaging (27% disagreed, 28% neither agreed nor disagreed, 29% no opinion)

When asked about how likely was it that over the next 5 years they would shop for groceries via the Internet, almost half of the respondents (46%) answered *not likely at all*. 41% of the respondents thought that none of their grocery shopping would be carried out via the Internet in 5 years from now while 22% of the respondents answered 1-10%.

Order sizes

In the brick-and-mortar stores, the frequencies that the respondents made large purchases can be summarized in Table 2 and Figure 6 below.

TABLE 2 FREQUENCIES WITH WHICH THE RESPONDENTS MADE LARGE PURCHASES IN THE NON-INTERNET GROCERY SHOPS (N = 1516)

	Frequency of shopping				
Stores	**Everyday**	**1-2/week**	**Every 2 weeks**	**1/mth.**	**Rarely or never**
Kroger	1	25	24	25	1441
Safeway	2	55	61	71	1327
Wal-Mart	7	117	171	401	820
Albertsons	2	28	32	23	1431

Meijers	2	13	10	31	1460
Shaws	1	30	24	35	1426
Osco/Jewels	4	80	72	79	1280
Aldi	0	47	67	162	1239
Publix	1	2	9	10	1493
Ahold	0	12	20	7	1476
Other	21	452	341	199	502

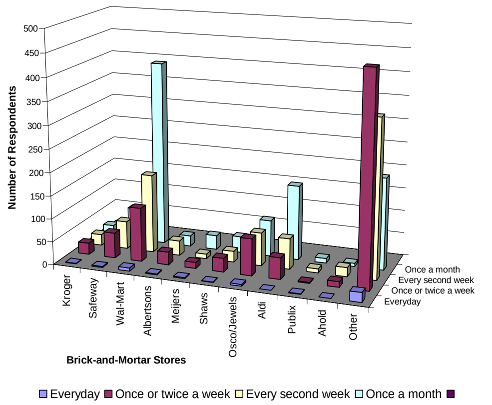

FIGURE 6: FREQUENCIES WITH WHICH THE RESPONDENTS MADE LARGE PURCHASES IN THE NON-INTERNET GROCERY SHOPS (N = 1516)

In the pure-play stores, the frequencies that the respondents make large purchases can be summarized in Table 3 and Figure 7 below.

TABLE 3: FREQUENCIES WITH WHICH THE RESPONDENTS MADE LARGE PURCHASES IN THE INTERNET GROCERY SHOPS (N = 1516)

Stores	Frequency of shopping				
	Everyday	**1-2/week**	**Every 2 weeks**	**1/mth.**	**Rarely or never**
Safeway	1	19	36	40	1420
Peapod	0	3	16	37	1460
Albertsons	0	12	12	12	1480
Other 1*	14	205	133	126	1219
Other 2*	4	83	78	86	1219
Other 3*	3	27	40	46	1309

* Names of pure-plays are not revealed intentionally

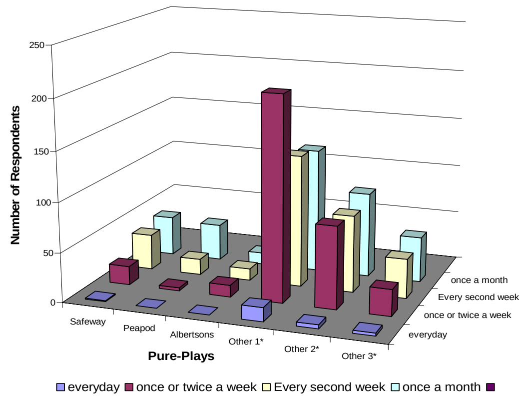

FIGURE 7: FREQUENCIES WITH WHICH THE RESPONDENTS MADE LARGE PURCHASES IN THE INTERNET GROCERY SHOPS (N=1516)

In the Internet grocery shops that went out-of-business, the frequencies that the respondents made large purchases can be summarized in Table 4 and Figure 8 below.

TABLE 4: FREQUENCIES WITH WHICH THE RESPONDENTS MADE LARGE PURCHASES IN THE CLOSED INTERNET GROCERY SHOPS (BASED ON 1516 RESPONDENTS)

Stores	Frequency of shopping				
	Everyday	**1-2/week**	**Every 2 weeks**	**1/mth.**	**Rarely or never**
Streamline	0	0	8	3	1505
Webvan	1	2	13	13	1487
Homegrocer	0	3	7	7	1499
Other	5	22	25	24	1440

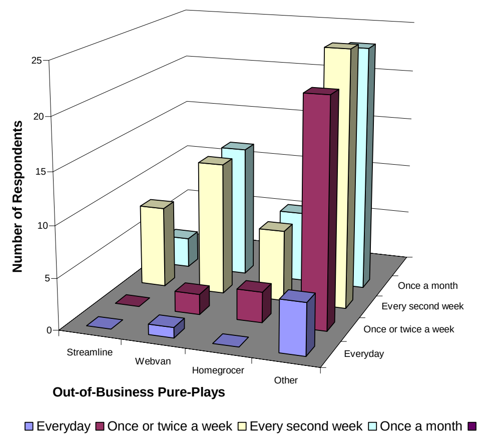

FIGURE 8: FREQUENCIES WITH WHICH THE RESPONDENTS MADE LARGE PURCHASES IN THE DEFUNCT INTERNET GROCERY SHOPS (N = 1516)

A majority of the respondents who made large purchases at brick-and-mortar stores shopped at stores other than those mentioned in the survey as can be seen in Figure 6, above. Figure 6 also shows that within the major stores (that have their names listed in the survey), the respondents made large purchase most at Wal-Mart, Aldi, Osco/Jewels, and Safeway, in that order.

Even though the respondents did not often make large purchases in the Internet grocery stores, there were a significant amount that sometimes made large purchases from other stores numbered 1, 2, and 3 (names not revealed in the survey results), respectively. Among the 3 Internet grocery stores with their names listed in the survey (Safeway, Peapod, and Albertsons), the respondents bought their groceries mostly from Safeway, as can be seen from Figure 7.

In the cases of online grocery stores that were defunct, the most frequency with which the respondents made large purchases falls into once every other week. The store they shopped most was the store not listed in the questionnaire. For the stores listed, Webvan seemed to be the one they shopped most at, followed by Homegrocer and Streamline, in that order.

When asked about the amount of money the respondents typically spent all together for packing and delivery when they shopped for groceries via the Internet, the results can be summarized as follows. Among 27 respondents who had purchased groceries from Safeway, the amount ranged from $0-1,500 with most frequencies at $10 (3 respondents) and $50 (3 respondents). Among 88 respondents who had purchased groceries from Peapod, the amount ranged from $0-10,000 with most frequencies at $100 (14 respondents). Among 9 respondents who had purchased groceries from Albertsons, the amount ranged from $10-10,000 with varied frequencies. Among 188 respondents who had purchased groceries from Other Shop 1 (name not revealed in the questionnaire), the amount ranged from $0-20,000 with most frequencies at $0 (43 respondents). Among 21 respondents who had purchased groceries from Other Shop 2 (name not revealed in the questionnaire), the amount ranged from $0-5,000 with most frequencies at $30 (4 respondents). Among 15 respondents who had purchased groceries from Other Shop 3 (name not revealed in the questionnaire), the amount ranged from $0-5,000 with most frequencies at $0 (5 respondents).

IV. Conclusion

While the growth of E-Commerce buying and shipping for grocery products has been slow in the United States in the past five years, the trends are increasing. Most consumers who are shopping for e-grocery are single or small family with relatively higher income levels. There is also a trend to have higher sales per shopping experience per individual customer as compared to in-store purchases. The successful e-tailers have offered this service of e-commerce purchased product with free delivery from their brick-and-mortar stores. The high value perishables are directly shipped to consumers from order-fulfillment centers or distribution centers.

References

[1] Anckar, B., Walden P. and Jelassi T. (2002), "Creating Customer Value in Online Grocery Shopping", Int. J. of Retail & Distribution, Vol. 30, No. 4, pp. 211-221.

[2] Aylott, R. and Mitchell, V. W. (1998), "An Exploratory Study of Grocery Shopping stressors", Int. J. of Retail & Distribution Management, Vol. 26, No. 9, pp. 362-373.

[3] Berning, C., Ernst, S. and Hooker, N.H. (2004), "E-Grocery: Who is the Ideal Consumer?", AEDE, Ohio State University, AEDE-RP-0043-04

[4] Chiger, S. (2001), Consumer Shopping Survey. *Catalog Age*. 18(9)

[5] Corral, C. B. (1999), "On-line Grocery Shopping Heats Up Despite Concern over Big Issues", Discount Store News, Vol. 38, No. 13, pp. 18-20.

[6] Geissler, G. L. (2002), "Targeting tourists: An Exploratory Study of a Proposed Online Grocery Delivery Service", J. Vacation Marketing, Vol. 8. No. 3, pp. 277-287.

[7] Hays, T., Keskinocak, P., Lopez, V.M., (2004), "Strategies and Challenges of Internet Grocery Retailing Logistics", Applications of Supply Chain Management and E-Commerce Research in Industry, Kluwer Academic Publishers, Dordrecht, The Netherlands, 2004.

[8] Kempiak, M., Fox, M. A., (2002), "Online Grocery Shopping: Consumer Motives, Concerns, and Business Models", First Monday, volume 7, number 9 (September 2002

[9] Kirkpatrick, D. (2002), "The Online Grocer Version 2.0", Fortune, Vol. 146, No. 11, p. 217.

[10] Kornum, N. and M. Bjerre, (2005), "Grocery E-Commerce: Consumer Behavior and Business Strategies" Edward Elgar Publishing Inc., Cheltenham, United Kingdom, USA.

[11] Lempert, P., (2005), "E-grocery-shopping (quietly) revs up again", http://www.msnbc.msn.com/id/7476587/, accessed 24 September, 2005

[12] Lim, H., J. Heilig, S. Ernst, R. Widdows, and N.H. Hooker, (2004), "Tracking the Evolution of E-Grocers: A Quantitative Assessment." *Journal of Food Distribution Research*, 35(2):66-82.

[13] Press Release, Michigan State University, Department of Marketing & Supply Chain Management, "Second Year Results from 3 Year Study of Online Ordering & Home Delivery of Groceries", March 1, 2004

[14] Singh, S.P., Packaging Trends for E-Commerce Shipments in the United States: A Focus on Perishables! "Grocery E-Commerce: Consumer Behavior and Business Strategies" Edward Elgar Publishing Inc., Cheltenham, United Kingdom, USA, 2005.

[15] Tapscott, D. and Ticoll, D. (2000), "Retail evolution", *The Industry Standard*, July 17